Claims

1. A construction in electric motor drive, where an asynchronous motor, such as drum motor, which has a stator (2) mounted on a non-rotatory shaft (1), and around the stator is a rotor (4), which is rotatory, like by means of bearings (3), connected on the same shaft (1) and has a short-circuit arrangement, is designed to drive a machine construction (actuator), **characterized in** that the functional part of the machine construction (actuator), like conveyor's (5) driving roll (5a, 5b, 5c), is arranged to operate by having short-circuit arrangement as the rotor (4) of the asynchronous motor.

2. The structure as claimed in claim 1, wherein the short-circuit arrangement is established by the short circuiting bars (4b, 4b') and rings (18) supported on the rotor's shell (4a,4a'), **characterized in** that the short-circuiting bars (4b, 4b') and rings (18) belonging to the short-circuit arrangement are arranged integral with the rotor's (4) shell (4a, 4a'), which is a functional part of the machine construction (actuator), like conveyor's driving roll (5).

3. The structure as claimed in claim 1 or claim 2, wherein an asynchronous motor is arranged to be cooled by having a fluid flow, **characterized** in that the cooling of the asynchronous motor is realized in a closed system, by carrying cooling

fluid, such as over-press cooling air (x) hermetically essentially in axial direction with it's primary flow arrangement (1a) through the stator shaft (1) like hollow shaft or pipe and/or with secondary flow arrangement (4c) through short-circuit conductors (4b) like hollow bars or pipes.

4. The structure as claimed in any of the claims 1-3, **characterized in** that the rotor (4) of the solid asynchronous motor comprises an of electric conductive compound metal manufactured structure, preferably comprising copper short circuit conductors (4b, 4b'), which are welded by explosive welding, butt welding into the holes in the steel rotor shell (4a, 4a') or that they are cast integral with the rotor shell in their places by a suitable casting method (e.g. centrifugal casting method).

5. The structure as claimed in any of the claims 1-4, **characterized in** that that when using especially star type coupling for windings, the output of the asynchronous motor equipped with three, four, or six pole stator windings is 0,5 - 500 kW having speed of rotation 0-20 000 rpm.

6. The structure as claimed in some of the claims 1-5, **characterized in** that the asynchronous motor is having a frequency transformer drive, which is equipped with an active rotation speed control.

7. The structure as claimed in some of the claims 1-6, **characterized in** that the rotor is

formed as a shell of a pulley (4) which is part of a vacuum belt conveyor (5) comprising a stationary vacuum box (11), the rotor drive further comprising: said central shaft (1) being supported by at least one supporting bracket (8) which is connected to the vacuum box (11).

8. The structure as claimed in some of the claims 1-7, **characterized in** that the drum motor's supporting brackets (8) can be used also as a connection surface(s) of the vacuum belt conveyor's accessories (e.g. knife plates, rotary rippers and choppers).

9. The structure as claimed in claim 7, **characterized in** that the distance D between the bearings (3) supporting the pulley (4) is larger than the length L of the pulley's shell (4a).

10. The structure as claimed in claim 9, wherein each flange (7) which connects an end of shell (4a, 4a') to one of the bearings (3) is formed as a bushing which bridges the distance between length L and D.

11. The structure as claimed in claim 9, wherein each supporting bracket (8) - seen in a longitudinal section of the conveyor (5), in Figure 5 - is formed double-folded similar to a Z.

12. Method for electric motor drive, where a machine construction (actuator) used by an asynchronous motor, such as drum motor, which has a

stator (2) mounted on a non-rotatory shaft (1) and around the stator is a rotor (4), which is rotatory, like by means of bearings (3), connected on the same shaft (1) and has a short-circuit arrangement, **characterized in** that the functional part of the machine construction (actuator), like conveyor's (5) driving roll (5a), operates by having short-circuit arrangement as the rotor (4) of the asynchronous motor.

13. Method as claimed in claim 12 with asynchronous motor, where the short-circuit arrangement is realized in connection with the rotor (4) like having short-circuit conductor bars (4b, 4b') and rings (18) supported on the rotor's shell (4a), **characterized in** that to the short-circuit arrangement operate at least partly internally as the rotor's (4) shell (4a, 4a') of the operating functional part of the machine construction (actuator), such as conveyor's driving roll (5a, 5b, 5c).

14. Method as claimed in claim 12 or 13 wherein a asynchronous motor is cooled by having a fluid flow, **characterized in** that the cooling of the asynchronous motor is realized as closed by carrying cooling fluid, such as over-press cooling air (x) hermetically essentially in axial direction with it's primary flow arrangement (1a) through the stator shaft (1) like hollow shaft or pipe and/or through with secondary flow arrangement (4c) equipped short-circuit conductors (4b') like hollow bars or pipes.

15. Method as claimed in some of the claims 12-14, **characterized in** that the rotor (4) of the solid asynchronous motor is manufacture of electric conductive compound metal structure, whenupon most suitable are copper short circuit conductors (4b, 4b'), which are connected into the holes and/or grooves by welding, like explosive welding or butt welding in the steel rotor shell (4a, 4a') or that they are cast integral within the rotor by a suitable casting method, like centrifugal casting method.

16. Method as claimed in some of the claims 12-15, **characterized in** that the rotor is formed as a shell of a pulley (4) which is part of a vacuum belt conveyor (5) comprising a stationary vacuum box (11), the rotor drive further comprising: said central shaft (1) being supported by at least one supporting bracket (8) which is connected to the vacuum box (11).

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